San Francisco Bay Conservation and Development Commission
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September 11, 2015

TO: All Commissioners and Alternates

FROM: Lawrence J. Goldzband, Executive Director (415/352-3653; larry.goldzband@bcdc.ca.gov)
Sharon Louie, Director, Administrative & Technology Services (415/352-3638; sharon.louie@bcdc.ca.gov)

SUBJECT: Draft Minutes of September 3, 2015 Commission Meeting

1. **Call to Order**. The meeting was called to order by Chair Wasserman at the Ferry Building, Port of San Francisco Board Room, Second Floor, San Francisco, California at 1:09 p.m.

2. **Roll Call.** Present were: Chair Wasserman and Vice Chair Halsted and Commissioners Addiego, Bates (left at 2:32 p.m.), Chan (Represented by Alternate Gilmore), Cortese (Represented by Alternate Scharff), DeLaRosa, Gibbs, McGrath, Nelson, Pine, Randolph, Sartipi, Techel, Wagenknecht and Zwissler.

Chair Wasserman announced that a quorum was present.

Not present were Commissioners: Department of Finance (Finn), Contra Costa County (Gioia), Sonoma County (Gorin), U.S. Army Corps of Engineers (Hicks), City and County of San Francisco (Kim), State Lands Commission (Lucchesi), Marin County (Sears), Solano County (Spering), U.S. Environmental Protection Agency (Ziegler).

3. **Public Comment Period.** Chair Wasserman called for public comment on subjects that were not on the agenda.

There was one public speaker who commented.

Mr. David Lewis addressed the Commission: I am the Executive Director of Save the Bay. I wanted to officially congratulate BCDC on the 50th Anniversary coming up this month. Save The Bay was intimately involved in your creation.

We are very excited about BCDC's current opportunities, role and opportunity to grow in importance and play an important role in the development of the Bay Area for the next couple of decades and in helping the Bay Area adapt to climate change.

BCDC has already been the leader for a decade in putting that issue on peoples' radar screens. We are very excited about your role in implementation of that work.

I would like to update you that there is a working proposal and expectation to place a nine-county parcel tax on the ballot next June. The San Francisco Bay authority, of which two BCDC Commissioners sit on the governing board of, has adopted that as a planning goal.

The current thinking on the parcel tax would be a $12 parcel tax and last for 20 years. That would raise one-half billion dollars. This money would be used to accelerate tidal marsh restoration and the flood protection from levy construction that goes with the tidal marsh restoration and the public access that could be expanded to the Bay through that work.

There is more than 30,000 acres already in public ownership, salt ponds and hay fields along Highway 37 that would be eligible for grants from the Restoration Authority if this parcel tax passes.

It is the biggest opportunity to move forward for environmental benefits and for economic benefits. This is the biggest opportunity to do climate adaptation and implementation possibly in the United States.

We don't want to miss this opportunity and all of you as local elected officials and community leaders have an opportunity over the next several months to help us with this goal.

The polling shows that a measure like this can pass if people understand what it is and know about it. We are working to raise the campaign funds that would be needed. We are working very closely with the business community, the Bay Area Council, Silicon Valley Leadership Group, leading trade unions and others to put together a campaign that can succeed in passing this measure.

It will be one measure with one name and one number or letter throughout the counties. I will leave copies for you of a guest opinion piece that I authored with Andy Ball who is the Western Regional President of Suffolk Construction and an active leader with the Bay Area Council and the Silicon Valley Leadership Group.

I am happy to speak with any of you further about how you can be helpful. And Commissioner Pine and Commissioner Gioia who are also on the Governing Board of the Restoration Authority would be happy to do that as well.

As a parting anniversary gift I will leave you with copies of Save the Bay 2016 Calendar. I hope you all enjoy the photographs which were the result of a photo contest.

Chair Wasserman moved to Approval of the Minutes.

4. **Approval of Minutes of the July 16, 2015 Meeting.** Chair Wasserman asked for a motion and a second to adopt the minutes of July 16, 2015.

MOTION: Commissioner Wagenknecht moved, seconded by Commissioner Bates, to approve the July 16, 2015 Minutes.

VOTE: The motion carried with a vote of 15-0-1 with Commissioners Addiego, Bates, Gilmore, Scharff, DeLaRosa, Gibbs, McGrath, Nelson, Pine, Randolph, Techel, Wagenknecht, Zwissler, Vice Chair Halsted and Chair Wasserman voting, "YES", no "NO", votes and Commissioner Sartipi abstaining.

5. **Report of the Chair.** Chair Wasserman reported on the following:

a. **New Business.** Does anybody want to request new business to be addressed at a future agenda? (The Chair received no requests)

b. **Rising Sea Level Working Group.** We had a good meeting of the Rising Sea Level Group this morning before our Commission meeting. The primary topic was resiliency issues in the Plan, Bay Area Version II. That plan is starting to be prepared. Version I did not pay enough attention to resiliency issues; in particular, rising sea level and air quality issues. There is agreement that this one will do a much better job. There is still some confusion on how the Plan is being put together for Version II. BCDC staff in conjunction with Allison Brooks the Executive Director of BARC, the Bay Area Regional Collaborative is doing a lot of work to put together the basic material for that. It is working closely with the Air Quality District as well as ABAG and MTC staff. There was some discussion about the current tensions between MTC and ABAG. There was no resolution to that. The consensus of the group was that if you stand back and look at things, there probably should be a merger. How and when and how it would be governed is not so clear. It is our understanding that there will be a discussion at the MTC meeting on September 23rd if you want to follow that. One of the ideas that is beginning to emerge is that as we work to expand ART to all nine counties it is our hope that those individual vulnerability studies and action plans that started with ART at the Alameda County shoreline can come together following the model of the RTP for transportation. We do not have the benefit of the kind of funding from federal and state sources that the RTP has but that is sort of a model of how we are going to move forward. BCDC is the logical lead for it. We do have some significant authority in this area.

c. **BCDC 50th Summit.** The next report is on our anniversary celebrations. It is highly appropriate that the first congratulations come from Save the Bay, the birthing entity for BCDC. Our intent had been to have two events on September 16th; one a summit at the Exploratorium in the morning, and we are going to have that, the other, a party that evening at the Exploratorium, that we are going to postpone. We were not able to put that together in time. The summit is coming along very well. You should have received invitations by email for that. It is by invitation only but if you have other people who you think should be there, let us know, we would welcome them. It is from 9:00 a.m. to 1:00 p.m. or so at the Exploratorium. We will have a keynote from Bill McDough who a lot of you know. We will have two panels, one to focus on what is and the other to focus on what may be. We hope it is the kickoff for the public phase of the campaign that we have talked about to figure out what we can do, what we should do and how we are going to pay for adapting to rising sea tides in the Bay Area. There will be a supplement focused on our anniversary in the San Francisco Business Times in their September 11th edition. That is a very good collation of articles recognizing what we have done and the challenges ahead. It is a very good campaign piece in terms of the broader educational effort.

d. **Next BCDC Meeting.** At our September 17th meeting, here at the Ferry Building in San Francisco we expect to take up the following matters:

(1) We will hold a public hearing and possible vote on an application by Caltrans to implode a pier as part of the dismantling of the old Bay Bridge.

(2) We may hold a briefing on the Army Corps' proposed South San Francisco Bay Shoreline Study.

e. **Ex-Parte Communications.** If anyone has any ex-parte communications that they have not yet submitted in writing or want to disclose on the record concerning adjudicatory matters, now is the time to do that. You do need to do it in writing and may do it only that way if you so choose. This brings us to the Executive Director's Report.

6. **Report of the Executive Director.** Executive Director Goldzband reported: It has been six weeks since we last met. As Brad McCrea noted earlier this summer, it tends to be feast or famine when it comes to BCDC's major permits, but with the smaller permit amendments and minor permits the hits just seem to keep on coming. While there probably are not any terribly controversial issues facing the Commission today, I can promise that we shall have some in either two weeks or four and even in six. As we move from summer into fall, we'll be the regulatory world's version of Usain Bolt, accelerating as we move down the track. That being said, please do not hesitate at any time to raise your hand to hit the pause button and ask a difficult question; or even better, ask a question that you might otherwise be embarrassed to ask – those are usually the kind for which every person who is sitting around you will be very grateful.

I am very pleased to let you know that we have offered the position of Chief Counsel, which has been vacant for over 30 months; to Marc Zeppetello (Mr. Zeppetello stood and was recognized). Marc has been practicing environmental law in the private sector for almost thirty years and comes to BCDC eager for a new challenge. While he does not have familiarity with McAteer-Petris, he has experience working with just about every other environmental law on the California books. He earned his undergraduate degree at Syracuse University in the field of Resources Management and, after learning how to write environmental review documents after his experience as a forester, he graduated from Boalt. Marc is also Chair of the San Francisco Bar Association's Environmental Law Section. Marc will begin his tenure at BCDC next Wednesday – exactly 18 days after getting married. Please let me know if you have any questions or concerns about his appointment. (No concerns or questions were voiced)

I am also pleased to introduce Mitchell Wilks (Mr. Wilks stood and was recognized), our relatively new GIS intern. Mitch earned his BS in Landscape Architecture from UC Davis and is completing a Master of Geographic Information Science from San Francisco State University. He has been a registered licensed landscape architect for 12 years and has 20 years of experience in production of computer graphics. He also is a past president of the Northern California Chapter of the American Society of Landscape Architects (ASLA). We love getting people like Mitch, so thank you.

I should also let you know that BCDC staff has been interviewing candidates for three different positions during the past few weeks – vacancies in the enforcement, planning and regulatory units. I expect that we shall hire at least one candidate prior to the next meeting and I shall keep you informed of our progress.

This summer has been the season of site visits. BCDC hosted three staff members of the Legislative Analyst's Office (known as LAO) a few weeks ago who are newly assigned to cover BCDC. We covered how BCDC works, our jurisdiction and authority, our regulatory program and then we took them over to Mission Creek in San Francisco and the Hayward shoreline to examine firsthand how rising sea level will affect the Bay and how BCDC is working collaboratively through the Adapting to Rising Tides Program to plan for it. We shall provide the same service to members of the California Natural Resources Agency in a few weeks. In addition, Steve Goldbeck and Wendy Goodfriend spent a day and a half with members of congressional staffs discussing rising sea level and BCDC's regulatory and planning programs earlier this week.

For those of you who are elected officials and if you represent jurisdictions interested in securing funds for water-born debris removal, NOAA has announced its community-based Marine Debris Removal Grant Program. This program supports locally-driven, marine debris prevention, assessment and removal projects that will benefit coastal habitat, waterways and NOAA trust resources. If you are interested in applying for such a grant, please let us know and we'll be happy to collaborate with you.

Finally, under the heading of good news, I am happy to give a shout-out to Commissioner Sears. You will remember that Supervisor Sears has been a major sponsor of the "OWL" viewer at Mill Valley. The viewer, which looks like one of the old-fashioned binoculars that you see on the bridges and so on that lets you use "virtual reality" to visualize the impact of sea level rise on the surrounding landscape. BCDC issued a permit for its use earlier this year. The County installed the viewers in April. Since then, over 3,000 people have used them and we have agreed to extend their use. According to a survey conducted by the County, 72% of the users surveyed indicated they were "somewhat concerned" to "extremely concerned" about current flooding conditions, 79% indicated that they were "somewhat concerned" to "extremely concerned" about additional sea level rise, 87% said they would be interested in learning more about adaptation strategies and only 13% said they were not interested at all. And, 60% said they would be likely to want more information and perhaps get involved in a local community groups regarding such issues.

So, clearly in that corner of Marin which floods very regularly, there seems to be some real interest. I shall complete my report based on that Mr. Chairman.

Chair Wasserman asked: Are there any questions on the Executive Director's Report? (He received no questions)

7. **Consideration of Administrative Matters.** Chairman Wasserman stated that there were no administrative matters to deal with and he moved on to Item 8.

8. **Consideration of 2014 Annual Report.** Chair Wasserman announced: Item 8 is the adoption of our 2014 Annual Report. Steve Goldbeck will provide the staff recommendation.

Chief Deputy Director Steve Goldbeck reported the following: You have before you a draft of the 2014 Annual Report that provides an overview of the Commission's actions and accomplishments in 2014 including approval of over 935 million dollars in new projects, four and a half miles of new public access along the shoreline and almost 14 acres of new Bay.

Staff recommends that you adopt the report and direct the staff to make any minor corrections for accuracy and clarity and submit the report to the Governor, Legislature and to the public. And with that I am happy to answer any questions.

Chair Wasserman asked: Are there any questions or comments on the report? (He received no comments)

MOTION: Commissioner Nelson moved approval of the staff recommendation, seconded by Commissioner Randolph.

VOTE: The motion carried with a roll call vote of 16-0-0 with Commissioners Addiego, Bates, Gilmore, Scharff, DeLaRosa, Gibbs, McGrath, Nelson, Pine, Randolph, Sartipi, Techel, Wagenknecht, Zwissler, Vice Chair Halsted and Chair Wasserman voting, "YES", no "NO", votes and no abstentions.

Executive Director Goldzband added: Staff actually spends an incredible amount of time compiling this information. It is by statute that we need to do this and it is by our very nature that we want to do this and demonstrate that BCDC works. We need to thank our staff for doing this.

The second thing is that if we have our way we will change this during the next couple of years. We are working over the long run to move the way we work toward a fiscal-year basis versus a calendar-year basis. We have funds for fiscal years. As a result, just as we have started the performance review process this year along the fiscal-year basis we want to go to the Legislature next year and have them change the statutory requirement for this so we can do this on a fiscal-year basis. It makes sense as we move through things. I wanted to preview that for you.

9. **Briefing on Oakland/Alameda Shoreline Resilience Study.** Chair Wasserman announced: Item 9 is a briefing on the Oakland/Alameda Shoreline Resilience Study, a project of the Adapting to Rising Tides Program conducted with the Association of Bay Area Governments and local partners. Maggie Wenger will present the staff briefing.

Planner Wenger presented the following: this is part of the Adapting to Rising Tides Program. We have been working in Alameda and around the region by sector, by geographic area with different partners to try and move forward on adaptation to current and future flooding.

We have been able to draw on our existing work and our partners' existing work. During our ART pilot in Alameda we learned a lot about this Oakland area. We learned that the Oakland Coliseum and Bay Farm Islands have difficult problems and they need a closer look and more concerted planning efforts. We were able to bring those findings in.

Our partners at the Association of Bay Area Government had been working on this area in their Seismic Resilience and Cascading Failures Report which is on networked infrastructure, pipelines, roadways and what happens as you lose segments of that and where we have redundancy and where we don't. This area was also a hotspot for them. We also had the ART transportation work that was funded through the Federal Highway Administration where we worked with BART, MTC and Caltrans to look at ground transportation in this area. The project area has many, many transportation assets. We were able to draw on those findings and draw on those partnerships. We have people in this study who have been with us since 2010.

From the county project we were able to bring in both existing shoreline analysis and methodologies for doing this work.

When we first got the set of maps for Bay Farm Island, it said that the north field flooded with 12 inches. We knew that could not be true. Our coastal engineer, Kris May, lives on Bay Farm Island. She said, I know that can't be, we see that water level every winter. No one has seen this flooding. They were able to go out and do more refined analysis. They did some manual corrections in the LIDAR layers and get a more refined mapping. That is possible at this scale but not at the county or the region because of the limited resources we have.

In Hayward the whole shoreline is very low. This is a different adaptation story. We do not need to raise all of Bay Farm Island. It is individual spots that need to be raised to cut off flooding pathways.

BCDC, ART staff and ABAG Resilience Program staff have been working with the Stronger Housing Paper Communities Project for two years now trying to look at not just what our housing vulnerabilities are in terms of, where are there hazards, but then; what kinds of houses are there, how are they built, are they retrofitted, are they new, are they old, do people live below ground? We also must ask what kind of people are there because we all move through different stages of vulnerabilities in our lives.

If you are very young or very old, if you are mobility limited, if you are ill or medically dependent in some way, if you don't have access to a vehicle, all of those things make you much more vulnerable in a disaster as well as socio-economic criteria, non-English speaking, low income, low education attainment. Being able to overlay both the hazards, the housing and the people for the region and find these hotspots gives you a good idea from a disaster preparedness perspective, from a resilience perspective of where you need to make more investments.

Portions of the Coliseum area and Bay Farm Island show up in this for different reasons.

In the transportation study we had some money so we could do some modeling. This is an area where we knew we had some joint riverine coastal flooding. It is not just a sea level rise problem, you also have rain coming down from the hills and if you have the misfortune of having those two events happen at the same time you can get a lot of flooding without a lot of sea level rise.

We also had a first cut at strategies for the Coliseum area.

It is not that this joint coastal and river story is only true here; this is just one of the few places where we have been able to do the modeling. Flood districts are doing this modeling at other places. It is happening in Marin. It is happening in Contra Costa. The unfortunate part is that is costs money and you have to do it watershed by watershed.

There is not a Bay model for this. You have to understand your landscape, your storm events; and then you can do it. It is not impossible it just takes resources.

The study area is all of Bay Farm Island which includes part of the city of Alameda, extensive Port of Oakland property including North Field, South Field, the terminals, all the airport supporting industry and then the Coliseum neighborhood into Oakland. This includes extensive residential areas as does Bay Farm Island, the current stadiums and more flood control channels than you could possibly imagine.

We have been doing this since the winter of 2014. We have scoped and organized. We have been able to draw on those existing resources and partners. We have moved through the assessment and we are working on the assessment report now. We have defined our vulnerabilities and risks and identified key planning issues.

This summer we have been out with them trying to develop adaptation responses, both at the asset or agency level and at the broader community neighborhood scale. We will preview some of those.

We will then do our evaluation criteria and then try to move into implementation.

We have partners in this project who are community members. We have the HOA from Bay Farm Island. We have emergency response people from Oakland. We have airport operations, park managers, lots of different perspectives. The resilience goals of the project include things neighborhood function, this means; people, where they live but also how they need to get around.

We must maintain the function of the airport. Everyone recognizes that this is a major regional asset protecting not just the physical aspects but the function of the airport is critical.

Because this was a joint, seismic flooding project with ABAG they think a lot about the disaster lifecycle. And they wanted to think about building resilience in all parts of the lifecycle. This includes mitigation and preparedness, which is the adaptation part. We are also looking forward to response and recovery after an event.

This is good way to think about what sort of strategies do we need to get ready? What do you do to minimize harm in the event of a flood or a seismic event?

This is not the most natural area of the Bay although there is more habitat than you think. We do want to preserve environmental quality in this area and that includes species, water quality, wildlife habitat and the recreation assets that go along with that.

The local and regional economy includes major housing assets, transportation, significant commercial services and this is very important to Oakland and Alameda and it is important to us as a region.

This area is at current and future risk almost universally. This is not good news but it is why we are there. We will need a very different looking airport and shoreline in the future. We also need to be thinking about how to get ready for a storm event in this area.

There are new FEMA maps for Bay Farm Island and the rest of Alameda County that bear this out. You have pretty significant storm event flood risks in this area. The airport is pursuing a map edit on that. This is the current FEMA-proposed insurance rate map.

This map shows the combined coastal riverine event. You can see major flooding in the parking lots but also in the neighborhoods behind the stadium. There are four other flood control channels in this area. This is something that could happen this winter. This is a storm event combination in an El Nino year where you have both rain and higher Bay water levels.

We have been talking to the city of Oakland staff on the planning and public works and the emergency response side and they are interested in this in terms of, what we can do to get ready for this winter. What do we do between now and November so this does not happen.

We did an assessment for assets and sectors and land uses. We have all the results of that. We also had to get to key planning issues. What does this working group need to move forward on together? What they can they not solve by themselves?

A major one was access. Bay Farm Island only has two main ways in and out; either you are on the 98th Hagenberger corridor or you are on Bay Farm Island Bridge going to Alameda. The airport does not work unless people can get there and get back. The neighborhood on Bay Farm Island does not work unless people can get there and get back. These are vulnerable transportation assets both to flooding and seismic events. These have huge economic and public health and safety community consequences if you were to lose either one of these, but certainly if you were to lose both.

We have housing, community members and community facilities that are vulnerable to current and future flooding as well as seismic events. Impacts to housing are long-term impacts. If you have people who lose their housing who are displaced, who have to move far away; that is a really long recovery process. And you may never get the same community back.

The Oakland Coliseum is very vulnerable to current events, to current flood risks. We are trying to work on capacity in those flood control channels. We are trying to work with Alameda County Flood and Public Works to address that.

Even the current issues are only going to get worse with more water. The Oakland International Airport has huge facilities in this area. They have been doing lots of seismic work on their perimeter dike and on their inland facilities. They are still vulnerable to some seismic events and to flooding in the long-term.

The habitat in this area is mostly fringing marshes so it is not big, South Bay, salt ponds complexes. It is these narrow strips. It is at the creek mouths. None of that is predicted to persist.

The permitting, regulatory and funding issues along the shoreline are really complicated for adaptation. The airport has lots of restrictions about what they can do around their runways and how they can fund things and what is a safe use in the immediate area and what is not. It is a unique land use and it is important. It is also a multi-agency controlled area.

Save the Bay spends tens of thousands of volunteer hours doing plantings in this area to try and restore native habitat.

A different kind of living levee has been proposed for Damon Slough. It is not the horizontal levees we talk about on the Bay shoreline. We are saying that you could lay the creek banks back and that would help your capacity issue. You could do plantings on it so it would have some environmental value. It certainly would be a better recreation experience than what Damon Slough is right now.

There is a trail along part of it. It is not great.

Building a bigger channel would solve some of the short-term issues. All we are trying to do is to store more rainwater.

There is a specific plan from the city of Oakland that is trying to try to encourage re-development in this area particularly around stadiums to try and keep the sports teams there. This is happening in parallel with our efforts and we are communicating back and forth. They are proposing tremendously enriched and intensified land uses in this area, commercial, industrial, housing, stadiums; they are talking about a lot of housing units, a lot of commercial buildings, a lot of use in this small area.

They have proposed pretty extensive public access. And some of that could be space for a floodway. A floodway is sacrificial space and hopefully it is useful for something in the meantime. It could be a trail. It could be a habitat area. It could be grass. It could be an athletic field or parking. The idea is you have floodway that is not someone's basement and is not a shopping mall or a stadium. It is floodable but this is hard to think about in an area where they are planning on to make the money work out. It takes a lot of development to make this work.

Luckily it is not a project. They are not making a decision and they are not going to break ground immediately. There is a little time to try and figure out the flooding in this area.

We looked pretty far afield for possible adaptation responses in this area. We looked at the Hoboken New Jersey example because it is a good parallel where Hoboken has had a lot of storm event flooding issues for decades. It is a tiny town. It is very impervious. It is cement and it is only a square mile. They have a lot of issues.

Their team came back from Rebuild by Design and said, you have to do all of the above. They went out with alternatives. You are going to do low-impact development. You are going to store storm water. You are going to build up a tide gate. You are going to build up a seawall. They said, Hoboken, you have to do all four.

They proposed hard infrastructure as well as pumping to get rainwater out and all of the green infrastructure and storm water storage they could think of.

This part of Oakland could really use this kind of significant greening. It is a neighborhood that already does not have enough green space, recreation space and this could be a big short-term win for this community. It would also be a long-term win and also solve the longer-term flooding problem. So the strategy is one of resist, delay, store and discharge.

This is also an area that East Bay Regional Park District has a request for proposals out for a Bay Trail connection.

They have been planning this for five years. They started this project before we were thinking about different water levels on our public access. They have proposed some strategies that would help with flood risks and some that would not at all. It is a $15 million dollar trail project.

We have been talking to them and the group about, what can they do that would create this trail but would also solve some of the short-term flooding problems.

This is a very good case of what is the minimum fill today is a little tricky here because they had proposed doing the trail on pilings in a portion, which would keep the trail high and dry but would not necessarily provide any flood protection behind it.

Here is an example from another situation. This trail is built as a floodway. This is in Michigan. The trail is almost always in use. This berm is actually the top of your floodway. On a normal day it is a great recreation space and sometimes it floods.

We are still developing adaptation responses. We are still refining and evaluating them and working with our partners.

There is a vulnerability assessment report that is being drafted now. We will be synthesizing and evaluating those adaptation responses. We want to make sure that we have thought about the options, what makes sense in the short-term, what makes sense in the medium and long-term and that we have decent buy in to make some of those changes.

We are intending to get to study findings and products in early 2016. I am happy to take any questions.

Chair Wasserman asked: Questions? Sean and then Jim and then Barry.

Commissioner Randolph commented: On the flood map for Oakland Airport, does that take account of current levees or expansion or raising of levees around the airport or is that just where the water would go at the present?

Ms. Wenger replied: This came up in the original ART pilot maps and as well here. The dike work that the airport has been doing is on the southwest side, their perimeter dike. Unfortunately, this flooding is coming from the northeast side. It is actually coming overland through North Field. This work needed to be done. This work on the perimeter dike was mostly seismic. They are flooding from land that they do not own. They are in a sticky spot.

Commissioner McGrath commented: You did mention that the FEMA maps are finally out which provides some mechanism for the underlying hydrology absent sea level rise. Are they still in a comment stage?

Ms. Wenger responded: The prelims are out. The airport in conjunction with Alameda County Flood is pursuing their own modeling in this area. FEMA maps are one-dimensional; it just says, if you are at this level or below you get wet as long as it is connected.

They are pursuing a timing angle given the way storm events happen here.

Commissioner McGrath added: To actually route the water through the drainage system. There is not yet agreement on the underlying hydrology.

Ms. Wenger continued: That will be coming soon. Luckily, they are in a hurry because the insurance rates kick in in a hurry. We are a matter of months away from those results.

Commissioner McGrath commented on the insurance rates: The insurance rates are interesting because those are a driver and they focus the mind amazingly well. We will get, absent sea level rise, a much better understanding of the underlying hydrology.

Commissioner Nelson commented: Our Bay Fill Working Group recently had a briefing from Mitch Avalon who works with Contra Costa County Public Works. It was a fascinating briefing because he was talking primarily about the regional flood management infrastructure and how it interacts with local flood management responsibilities as well as with sea level rise and shoreline protection issues.

It made my head hurt because on the one hand, all three of those systems, local flood protection systems, shoreline protection systems and regional flood management systems are interconnected and even more so as we think about sea level rise but institutionally there are real challenges there because the County Public Works folks traditionally have jurisdiction over those regional flood management facilities not the shoreline protection facilities, the local facilities. And this is a particularly exciting case study because of those interactions.

You have been talking about the physical interactions here. Could you talk about the institutional interactions and getting the agencies with jurisdictions over different flood management responsibilities to work together and think regionally?

Ms. Wenger replied: Damon Slough is not the flood control channel it was engineered to be. It is silted in. It has things growing in it, which is a sign of how much it is silted in. Flood channels are supposed to be trapezoid. It does not look like a trapezoid.

It is a good example of governance issues. Alameda County Flood has not the money to do their maintenance dredging or they have not been able to get the funding or the permit; something has not happened. Not only do we not have enough capacity looking forward we do not have the capacity we should have because it has not been maintained.

You will hear that story in Contra Costa. You will hear that story in many, many places. You can see the governance issues on the ground.

Senior Planner Lindy Lowe commented: In terms of the governance issues in this particular location, you are right. It is a fabulous case study. If you take the Coliseum area, you have Alameda County Flood and we just had a meeting with the city of Oakland. We were talking about this site and they said, well, we really need Alameda County Flood to participate with us. We said, we are talking to them and we are trying to get them involved.

In order to solve this flooding problem there is also a very significant upper watershed that is draining into this location.

So this is not just Alameda County Flood. It is also what needs to happen in the upper watershed, which is a city of Oakland issue. We need the city of Oakland Public Works Director, city of Oakland planners, Alameda County Flood Control and then in addition, the Airport, East Bay Regional Park District and Caltrans to all work together to try to solve this flooding problem because no single entity is responsible for the flood management in this location.

This particular area is particularly thorny. But even in the Hayward shoreline, which was presented to you last year that story, is also very complicated. You have East Bay Regional Park District that is supposed to be providing park and recreation resources to the East Bay responsible for significant shoreline protection. They do not have the funding or the mandate to be protecting the city of Hayward.

This story plays out around the shoreline and it is a very tricky issue for current flooding. For sea level rise issues we really need to get it sorted out before we start confronting more significant water levels.

One of the things that is wonderful about what we have been doing and what we see in the Adapting to Rising Tides Program is, we had Caltrans and East Bay Regional Park District and the Airport and the city of Oakland representatives all brainstorming solutions and compromises and trying to figure out the strategies for moving past some of these difficult issues.

Commissioner Zwissler commented: If we were to have a storm event, how long would that water remain there? Is there a prediction?

Ms. Wenger replied: The airport does pump storm water off of its grounds now. They have capacity to do that now. They have pumps in place and they can get water off. We have not seen a storm event like this in the last couple of decades. A lot of work has been done on the airport.

Commissioner McGrath continued the conversation: We have to think about the institutional and political problems. There are two of these that I would like to comment on.

First, the engineering aspects. Not unique to Damon Slough is the problem that when we did the engineering for the flood control channels around the Bay we did not understand sediment movement and the amount. By excavating flood control channels below the mudline we did not get hydraulic capacity. We got a maintenance nightmare. That will fill in with sediment either from the Bay or the channel. So, the Bay will fill those channels and has.

If you look at most of the channels that theoretically have a 100 year capacity they have a 20 year capacity. Then you've got the environmental justice problem compounded by 218.

The watersheds in the hills want to get the water off of their land as quickly as possible. They don't really care or have any real responsibility for whether or not that exacerbates flooding in downstream communities.

The current situation with Proposition 218 leaves governance completely unable to do anything about the equity issues. If something in the Oakland Hills or any other hills efficiently gets water off their property and creates a downstream problem there is right now on new development much less on existing development to have them help pay for the solutions.

There are some thorny problems to deal with.

Chair Wasserman had questions: On the Coliseum site do you know to what extent the problem with the Damon Slough is directly related to the flooding problems for the Coliseum facilities?

Ms. Wenger replied: The past sewage backup events? We have not had a strong working relationship with the property management company who operates the Coliseum facilities. They are all part of the same problem which is, this is low-lying and you dug in the water table. So then you should not be surprised when water finds a way in. Those have not been tied to storm events. That seems like a sewer system issue.

Chair Wasserman continued: If you have not I would urge you to include the Coliseum JPA not the sports management agency. They are immediately affected now and while not critical players are likely to be critical players in the future development of that property.

If you would go back to the airport slide, you started off saying that this slide is actually not accurate. This is the revised one.

Ms. Wenger stated: We moved from 12 inches to 24 or 36. It is not a forever solution.

Chair Wasserman continued: You also said that you can correct this in some very specific situations if you are looking at it and can garner the resources to do that. The corollary is that the general mapping does not do that.

Ms. Wenger replied: Our general mapping is getting better all the time. The SFEI shoreline delineations will be part of that.

Ms. Lowe stated: One of the things that we found from the regional models that folks use is we generally use the sea level viewer from NOAA.

When you move from that it gives you a, where do I need to look further. We conducted the shoreline delineation which was done by AECOM for us several years ago in the ART Alameda County Pilot Project and that delineated the shoreline into six different types of shoreline from natural areas to FEMA structural protection.

Then we used water levels to determine where did get areas get overtops, where does the water reach the top of the shoreline protection and move over or where is the threshold?

We are moving towards that around the entire Bay shoreline. We are hoping that every county will have access to this.

One of the things that we found was that there were only three areas that really did not make sense to us without walking them or going out there and looking. And that gives us pretty high confidence with that kind of mapping.

When we went out and ground truthed it with the local land managers and flood control managers they said, this looks about right.

Chair Wasserman shared an observation: Anytime we try to simplify something we also lose sight of some things. When we talk about the campaign of what can we do, what should we do, how do we fund it; the what should we do has that subset of, what do we really need to do. We need to keep that in mind.

Commissioner Techel commented: In some ways you sound similar to what happened in Napa where we got a whole coalition of folks together with different interests to figure out how we could solve our flood problem. Why that happened was we had an extreme event that caused everybody to say, there is a problem.

We may well be in line to have something happen if the super El Nino comes. It sounds like you are going to be ready for the leadership to say, ok, now that people see the need we've got some thoughts on how to bring you together.

It is fascinating for me to look at the flood project now that it is built and to see the park downtown that is a holding bowl for the water when it floods and the floodwall that is an area for the water to flow when it floods and they bypass that we just opened that is all green and natural and will take half of the floodwater.

We would be thrilled to give people a tour and show people the coalition process and how you can really green your community by doing a flood project.

Commissioner DeLaRosa spoke: Which mapping tool did you use and is the data available?

Ms. Lowe replied: We started out with the NOAA Sea Level Rise Viewer which is publicly available for folks to use. We can help communities use it. Our GIS analyst can help folks in different jurisdictions use that data.

What we did in Alameda County and then in San Francisco city and county is the shoreline delineation and water level work that we did. We are getting the shoreline delineation for all nine counties working with SFEI to do that. The water level work is being funded right now by FEMA.

When we get both of those together we are hoping to remap all of the Bay shoreline so that all communities can have this powerful threshold tool so that you do not have to decide what scenario do I pick. You really get to figure out, for my shoreline at what point does the water matter?

For some folks it is not until four feet and for others it is two feet. The scenario you pick may be the wrong scenario for your particular shoreline. That is why we think it is such a powerful tool and moves people forward towards decision making as opposed to being stuck in deciding the proper level to work with.

Commissioner DeLaRosa replied: I am with the state and I am thinking about how the state link to or incorporate this in CalAdapt or some of our other tools. We use NOAA.

Ms. Lowe added: We are pretty consistent with our where we start at the regional with CalAdapt.

Commissioner DeLaRosa asked: In terms of economic modeling are we going to have any assets at risk versus costs to mitigate impacts traditional or innovative solutions? Are we going to have any of these estimates? Kind of similar to what Risky Business has done but more on a broader scale.

Ms. Lowe replied: More than likely what we have generally done because it can be pretty challenging with the data that we have available, for example, to develop a cost estimate to losing the Oakland Coliseum; what we did during our ART transportation work really indicated how challenging it is to estimate many of these costs.

What is the cost to rebuild, does it include the cost of disruption and it gets very complicated. What we have tried to do is identify the consequences of disruption on society and equity, on the environment as well as the economic consequences of lost jobs, of loss of the asset, maybe the temporary loss of the asset; it winds up being more qualitative than quantitative because the data sets really do not support the quantitative analysis.

I am hoping that at some point at the federal or state level there is some sort of support to help us at the regional level and the county level develop a tool or process or data set that can support that kind of quantitative analysis.

Commissioner Randolph added: In April our institute released a report called, Surviving the Storm. It looked at the likely economic consequence if a major storm event were to occur in the Bay Area like something on the scale of Katrina or Hurricane Sandy in New York.

It was not posited on sea level rise. The assumption was that sea level rise would exacerbate the impact of any major storm. We were looking at the consequences of a major storm event coinciding with a King Tide. We did endeavor to map out and quantify as far as we were able what that would look like.

So the estimate were based primarily on property damage with some estimates of costs related to highways being inaccessible for a period of time or airports being inaccessible for a period of time.

We were not able to model lost business. That is another whole story. What we did come up with was a figure from the major storm event that was about the equivalent of the economic cost of the Loma Prieta Quake. It was about $10 billion.

That is on the record and we have a website called, Our Bay on the Brink, where most of that data is available. It has been mapped out and we actually retained an economic modeling company to help us with it because a lot of it is data that is not just sitting out there.

Chair Wasserman had a comment: It seems to me we have got two specific examples of some level of governmental coordination of different jurisdictions; one is the Napa situation and the other is the San Francisquito Creek. Staff and a number of our groups have looked at them.

It seems to me it might be appropriate in the next couple of months to look at them once again so that we are prepared for a high likelihood that the El Nino will produce some significant flooding for us. We need to be prepared for dealing with that immediately. We should take advantage of being ready to deal with that as the spur to, oh my goodness, actually getting something done.

Commissioner Pine added: We have been thinking a lot about governance and flood control and sea level rise in San Mateo County. It is a difficult issue to solve for. We have discovered our flood control district is very similar to what exists in many other counties where these districts were created right after World War II and there are these zones that they have jurisdiction in. Their powers are more limited than you think. Their ability to raise revenue is more limited.

We would do a service in our work to put a spotlight on these governance challenges. In Alameda/Oakland if it is not in there already it might be very helpful to explain in a detailed way why it is hard to deal with it.

There are a couple of interesting models. I am interested in learning about Napa and how you were able to get everyone together to make that work.

The Santa Clara Valley Water District is an entirely different model. Most parts of the Bay are extremely hampered by governance. Maybe we need to put a little more emphasis on that to bring more focus to it.

Chair Wasserman continued: I think we've got it. Thank you very much for an excellent presentation.

10. **Briefing on SFEI and Collaboration Regarding Sea Level Rise Resiliency.** Chair Wasserman announced: Item 10 is a briefing on the San Francisco Estuary Institute and its collaborations with BCDC and others regarding rising sea level. Warner Chabot, the Executive Director of the Institute will make the presentation. We really need to focus on in figuring out how to adapt to rising sea levels are governance and financing.

Mr. Chabot presented the following: My name is Warner Chabot. I am the Executive Director of the San Francisco Estuary Institute. My three goals today are:

a. To introduce you to the roles and functions of the Institute

b. To outline some science issues that we want to bring to your attention that BCDC already has been and will be dealing with that will also have to be dealt with at the governance and the finance issue.

c. To suggest some possible areas of collaboration between BCDC, the Institute and other regional players.

I have been a Northern California boy my whole life and dividing my career into thirds; about a third in the public sector, a third in the private sector and a third in the non-profit sector dealing with environmental planning, politics and public policy.

I am now taking my advocacy skills to use them to advocate for getting better science into decision making and to support 50 scientists at the Institute.

The Institute has been around for about 23 years and has 50 scientists. We focus mostly on the San Francisco Bay and Delta region. We are a non-advocacy, science-based organization that tries to provide reports and GIS-based tools to local and regional planning entities to help them monitor, assess, visualize and plan solutions to address a wide range of aquatic issues including sea level rise, green infrastructure and flood control issues.

Like BCDC the Institute was a creative governance solution to a regional, Bay Area problem in the early 90's. There were about 40 pipes going into the Bay and a concern about how to monitor pollution in the Bay.

There was an agreement between the three groups, the regulatory community, the different discharge agencies and entities and the non-profit, public-interest organizations.

They created the Institute at that point with the concept of saying, rather than trying to have different scientists monitor what comes out of the pipe that there would be a regional group that would represent all three entities and an independent group of scientists would come up with a set of proposed work plans to address management issues region-wide and would produce independent science based on work programs that the three entities agreed upon so you had honest, clear science that everybody agreed upon in advance to provide data and alternatives for regulatory agencies and all the player to try to follow and come up with solutions.

Over the 23 year period the expertise, interests and capabilities of the Institute have grown from being a focus on San Francisco Bay water quality to moving up the watershed addressing issues from flood control to watershed planning to green infrastructure to wetlands preservation and protection.

Currently the Institute is engaged in about 30 projects in the Bay and Delta region for local, state and federal entities. These include:

a. Shoreline studies and planning workshops in collaboration BCDC;

b. Flood control planning for the entire region; and

c. Historical Ecology and resilient planning for Bay Area communities like Napa.

d. Creative use of wastewater along the East Bay Shoreline with the East Bay Discharger Authority

e. EPA funded 'Green Infrastructure' planning for San Mateo, San Jose, and now focused on Richmond, Oakland and the East Bay shoreline.

f. The US Army Corps has asked us to develop a science framework to explore creative, cost efficient solutions to improve the use of natural resource processes to distribute sediment to reach shallow Bay wetlands and help restore and maintain and nourish our wetlands

g. We are also working with Google on a framework to apply resilient, ecological principles to support community- wide sustainability planning for Silicon Valley and elsewhere in the world where Google has facilities.

I want to give you an overview of our three program areas:

Clean Water, Resilient Landscapes and what we call Environmental Informatics.

Our clean water program tries to look at providing data, science, data, tools and monitoring systems for the Bay and Delta but also the Klamath River and other areas.

For 23 years we have had a Regional Monitoring Program comprised and led by this same coalition of regulators and the discharge and non-profit community to define Bay issues.

We are working with the APA in trying to develop a software program to enable any community to look at its underlying geology, aquatic systems, hydrologic flows and urban infrastructure and identify the most cost-effective locations for installing impervious surfaces and making cost-effective trade-offs between different types of solutions for green infrastructure.

Our Resilient Landscapes Program has been something that has grown in the last decade. We did work with Napa to look at their historical ecology to provide a scientific foundation for the flood management programs that they have developed.

Our Environmental Informatics Program is a group of scientists and technicians that try to take the science and provide science-based GIS tools that we make available to empower local governments to have better data and better systems to visualize planning solutions.

One of the things that we have produced is a thing called Eco Atlas which is trying to create a database for all the known ecological information on processes in the Bay Area so that you can zoom in any particular portion of the Bay and identify pollutants or a variety of issues to help you in your planning efforts.

We are doing a project with Google to try to look at better scientific principles that could apply to entire community regions and we hope to try to test that in conjunction with appropriate community groups in the coming year.

We recognize that our work and the work of BCDC is looking at issues from drought and water supply, sea level rise, sediment loss to our wetlands and extreme weather and increased flood risks. Both your staff and your Board are well aware of the many challenges and complexities of dealing with sea level rise. This is a continuum that we have been addressing for over 200 years. It is an issue with sea level rise that we are going to have to deal with a lot more significantly in the coming future.

The question then becomes, we are in a fork in the road and the question is, how do we look at possibly new ways of governance, new ways of finance to solve our problems. Who do we partner with? How do we safely reach our destination and avoid the angry flying monkeys?

We do recognize that we have a multiplicity of organizations and entities throughout the Bay Area that we need to collaborate with. What we might need is a new set of heroes. We might need a new form or governance or new forms of finance to tackle the complex villains of sea level rise.

We have plans from ABAG's Plan Bay Area to BCDC's Adapting to Rising Tides, the charge group led by FEMA and flood control agencies; there are at least 30 specific major projects trying to deal with sea level rise.

About 15 years ago the Regional Board and the EPA co-sponsored and published the Baylands Ecosystem Habitat Goals Report. It set a goal to restore the Bay's existing tidal marsh from about 40,000 to 100,000 acres. We've made good progress on that goal but we're still far from it.

This September the San Francisco Estuary Institute is going to be involved as the primary author of three major reports to update our knowledge of the health of the Bay and Delta.

a. **The bi-annual PULSE** of the Bay Report will be based on the 20 year Regional Monitoring Program. It will update our knowledge of water quality in the Bay. It will also offer a look 50 years into the future as to what we might need to be doing to address our urban infrastructure and water needs

b. **The STATE OF THE ESTUARY Report** will incorporate and expand on the knowledge of the PULSE Report. It will offer a report card on the overall health of the Bay and Delta based on 28 indicators of health.

c. Finally, and the focus of my presentation is the **BAYLANDS GOALS UPDATE REPORT**. The BAYLANDS GOALS UPDATE to be released in early October will make several key points:

(1) **Sea Level Rise**. The 1999 Update set a goal of 100,000 acres of restored and protected Bay wetlands. This goal is challenged by sea level rise which is expected to accelerate by the middle of this century.

(2) **Focus on Restoring Ecological Processes not just Habitat Acreage**. While the 100,000 acre goal remains for tidal marsh and other habitats, the updated science says it's more important or equally important to focus on the natural processes that maintain habitats, deliver sediment and make them resilient for the next 100 years.

(3) **2030 Deadline for Action**. The 2015 Update calls for an accelerated effort so that we restore tidal flows and sediment supply to strategic areas and manage that sediment to supply and support the tidal marsh ecosystems before sea level rise accelerates

(4) **Restore Complete Wetland Systems (Habitats & Processes)**. That means restoring complete wetland systems with many interconnected habitat types along with the physical, tidal and watershed processes that sustain them. That means regional and watershed planning.

(5) **Restored Natural Stream Connections**. We also know that we need to restore the natural stream connections and take a stronger look at our flood control channels. This means a diverse approach to natural stream connections to the Baylands to nourish the wetlands with sediment and fresh water that create wildlife movement corridors.

(6) **Cost of Failure**. If we fail to quickly restore, nourish and create new wetlands we'll lose their capacity to buffer against storms and provide cost-effective natural infrastructure. We'll be left with few options for a shoreline other than artificial sea walls and high levees with an accompanying decline in water quality, wildlife, recreation and therefore compounding and accelerating sea level rise even faster.

(7) **Rethink Water Quality and Shoreline Sea Level Rise Policy**. This Board and this staff, (more than any other Bay entity), knows the strategic value of retaining and growing our wetlands. But sea level rise will require all of us to address this issue on a very comprehensive and complex manner.

(8) **Regional & Watershed Permitting.** We need to do better regional and watershed permitting. With the exception of the regional permits for municipal stormwater, nutrients, mercury and PCBs, most permitting by the Regional Board is project-based. The fundamental science argument in the BAYLAND GOALS Report (and many others), is that our Bay ecosystem planning and management requires a watershed approach that coordinates flood control, water supply management, pollution control and wildlife conservation. That suggests that this Commission and others should explore how permitting can incentivize the watershed approach to improve resource management.

d. **Flood Control 2.0.** As you know, Flood Control is a regional challenge. Flood Control 2.0 is an effort by SFEI with others of many entities, assisted by SFEI. This effort benefited from the early support from the Regional Board and others. You received a briefing on the program in March 2015. The goal is to help re-envision flood control channels and adjacent lands across the bottoms of local watersheds to meet both flood control and wildlife habitat needs.

E. **Operational Landscape Units.** SFEI is also trying to work with a variety of entities to try to look at operational landscape units, different units that have unique characteristics so that rather than dealing with political jurisdictions we are dealing with hydrologic and watershed factors that might require more cooperation between multiple entities.

f. **Sediment Management**. You already know about the dramatic changes in sediment supply over the past few hundred years. You also know that today, local runoff and land surface erosion are much better managed and stream flows are regulated while sediment remains trapped behind dams and in flood-control processes.

g. The Estuary has entered a new era with much less suspended sediment available. There won't be enough sediment for much of the marshes to keep up with rising seas in coming decades. If the marshes are lost the shorelines behind them will no longer be buffered by these wetlands and sea level rise impacts will be greater and more costly.

h. We need to begin a multi-agency effort to produce a regional sediment management strategy.

i. **Dikes and Levees Policy**. Several communities (like Foster City) are developing dike and levee expansion plans. Yet many scientists believe that more sea walls we put in we may protect immediate properties but at the long-time cost of of exacerbating sea level rise within the Bay and increasing erosion on adjacent shorelines. This is a complex and difficult policy challenge. It should be addressed by this Commission in cooperation with others.

j. **San Francisco Bay Wetlands Monitoring**. The Bay Area has a great number of projects that are either underway or in the pipeline that will benefit from some level of coordinated monitoring. These include:

(1) The Bay Restoration Authority;

(2) The South Bay Salt Ponds projects;

(3) The Mercury TMDL;

(4) The SF Bay Joint Venture Restoration Project;

(5) The IEP (Interagency Ecological Program) – Monitoring for tidal marsh fishes; and

(6) Performance Standards for tidal marsh restoration (Delta Stewardship Council).

k. We need for a common methodology and program to implement those methods. Could the Commission and SFEI develop a single methodology and a program to ensure that we are monitoring our progress on these many wetland related projects so that we can adapt our regulatory, permitting and management actions where and when needed?

l. **Conclusion.** In conclusion, the BAYLANDS GOALS REPORT advises that our planning and permitting should:

(1) Anticipate and Incorporate the many impacts of climate change and Sea Level Rise;

(2) Accelerate our efforts at Wetlands restoration prior to 2030;

(3) But do so with a focus on restoring entire the entire process that maintains those habitats, that means looking at the entire Watershed to restore all of the functions of natural stream connections.

With a respectful recognition of your existing heavy workload we still would like to discuss with you how we might better coordinate and collaborate with you on these issues. These issues will get a larger spotlight after the BAYLAND GOALS report is released in October. When and where appropriate, SFEI is willing to partner with you to explore concepts or to develop processes and tools to tackle these challenges. We believe that it's possible for the Bay Area to set 100 year vision for a much healthier environment.

We know that topics like governance and finance are not popular.

I believe that people do not respond to governance, they do not respond to rules and regulations, they do respond to visions. And rather than approaching this by, how to we come up with better governance; I think it is our job to work with the various entities to produce better visions. Let's give people visions of a Bay Area of what it could be like 100 years from now with healthy productive shorelines that are wildlife corridors that have active recreation. Let's give people an opportunity to think about a restored Bay for the next 100 years. If we do, our grandchildren will be grateful and thankful.

Chair Wasserman asked: Any questions? (No questions were voiced) Thank you for your presentation and I am sure we will continue to work together. There are no other matters before us so I would entertain a motion to adjourn.

11. **Adjournment.** Upon motion by Vice Chair Halsted, seconded by Commissioner Nelson, the Commission meeting was adjourned at 2:36 p.m.

VOTE: The motion carried with a vote of 15-0-0 with Commissioners Addiego, Gilmore, Scharff, Delarosa, Gibbs, McGrath, Nelson, Pine, Randolph, Sartipi, Techel, Wagenknecht, Zwissler, Vice Chair Halsted and Chair Wasserman voting, “YES”, no “NO”, votes and no abstentions.